

Top athletes should sleep better—and they can

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Top athletes are generally good sleepers. However, there is certainly still something to be gained in the field of so-called 'sleep hygiene,' and light therapy is a promising strategy for optimal sleep, concludes sleep expert

Melanie Knufinke. She researched the sleep (habits) of top athletes in the Netherlands and is to be awarded her Ph.D. by Radboud University on 1 October.

Earlier research showed that top athletes [sleep](#) less (well) than non-athletes. As sleep is very important for recovery and performance, this raised the question: what about the sleep of Dutch athletes? It led to Knufinke conducting a unique study, in collaboration with, among others, NOC*NSF: Never before has there been an international study looking into sleep among such a large group of top athletes, with both objective measurements and the experiences of top athletes themselves.

Good sleepers, but not sufficiently rested

Knufinke studied 98 top athletes in the Netherlands, ranging from young talents to Olympians such as cyclist Anna van der Breggen. She asked them to keep a sleep diary and researched their [sleep patterns](#) and sleep stages using actigraphy (based on movement) and EEG (based on brain activity). Knufinke concluded that in general, [professional athletes](#) sleep well, on average eight hours per night, but their sleep is fragmented, and they feel insufficiently rested in the morning. "We noticed that there is still a lot to be gained, both during the falling asleep part of the process, and when waking up," says Knufinke. Performance measurements also showed that even small changes in sleep duration—from day to day—have an immediate and measurable effect on reaction time. According to the researcher, this is reason enough to see if this can be changed.

The researcher looked at, among other things, the so-called 'sleep hygiene' of top athletes. Daytime behaviour and environmental factors, such as drinking caffeine and exposure to artificial light, can significantly affect sleep. Knufinke: "Some behaviours offer room for improvement. For instance, it would be better to have fixed times for

going to bed and getting up, and to avoid heavy meals and caffeine late at night. It also became clear that top athletes often worry before they fall asleep. They were also exposed, in the evenings, to artificial light on three of the four nights surveyed. That limits the body's capacity to 'feel sleepy'."

The study resulted in a sleep hygiene guideline for top athletes. "As soon as we received the results of the sleep study, we called the coach(es) to discuss the findings. Then we gave the top athletes advice on good sleep hygiene, at a team level and/or individual level. This is time-consuming, but the great thing about this is that we directly translated scientific insights into sports practice, and the top athletes were always very happy with our advice. We have also worked with the NOC*NSF on creating fact sheets for the coaches, learning them, for instance, how to deal with jetlag," says Knufinke.

Lights out at night, lights on in the morning

To reduce the time it takes to fall asleep and to wake up, Knufinke conducted several sleep intervention studies among sub-top and recreational athletes. She looked at the effects of heated bed socks, amber-lens glasses (blocking the light at night using a short wavelength), but light therapy turned out to be the most promising strategy for sleep optimisation. "Athletes who in the evening blocked the light with a short wavelength, but who in the morning (with the help of special glasses) were exposed to bright [light](#), fell asleep more quickly. Also, they felt that they had slept better," says Knufinke.

Knufinke's conclusions about sleep in top athletes can be applied to everyone. "Poor sleep has become a kind of folk disease: 35 per cent of the population is below the limit for sufficient sleep (less than 6 hours), and 45 per cent has difficulty falling asleep and continued sleeping. In addition, [poor sleep](#) has been associated with various other diseases, such

as diabetes and cardiovascular disorders . A good night's sleep is just incredibly important. The mechanisms we have tackled are not linked to the status of the top athletes, and the advice could, therefore, be applied to anyone.

Provided by Radboud University

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